



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,481	07/13/2005	Catherine Callens	12928/10018	2819
26646	7590	10/22/2007	EXAMINER	
KENYON & KENYON LLP			PALABRICA, RICARDO J	
ONE BROADWAY			ART UNIT	
NEW YORK, NY 10004			PAPER NUMBER	
			3663	
			MAIL DATE	
			DELIVERY MODE	
			10/22/2007	
			PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/506,481	Applicant(s) CALLENS ET AL.	
	Examiner Rick Palabrica	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-18 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's 9/7/07 Amendment, which directly amended claims 14, and 16-18, canceled claims 19-22, submitted replacement drawings, and traversed the rejection of claims in the 3/2/07 Office action, is acknowledged.

Response to Arguments

2. Applicant traversed applied art, Bezold et al., on the grounds that: a) "they do not disclose, or even suggest conducting corresponding calculations before manufacturing the assembly"; b) "they are only interested in avoiding damages to the control rod – not avoiding damages to the guide tube or a damping portion thereof"; c) they "do not disclose or even suggest, calculating based on a maximum elevated pressure, a maximum circumferential stress produced in a lower damping portion as recited in claim 14." The examiner disagrees.

As to argument a), the above-cited feature upon which the applicant relies ("conducting calculations before manufacturing the assembly") is not recited in rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, if said unrecited feature is considered by the applicant to be critical to his invention, then such omission would amount to a gap between the essential elements. In this case, the claim(s) would be incomplete and would be rejected under 35 U.S.C. 112, second paragraph. See MPEP § 2172.01.

Art Unit: 3663

The claims (e.g., claim 14) recite in the preamble, "a method for designing a nuclear fuel assembly." As presently set forth the claims recite the term "designing" (or "design") broadly, i.e., including any and all stages of design and not limited to design before manufacturing, contrary to applicant's allegation. The term includes, e.g., re-design after a prototype design has been completed, optimizing an initial design, modifying a design in response to new or revised requirements, modifying a design as a result of changes in other parts of a system, etc. Thus, even assuming for the sake of argument that applicant's allegation is correct (which is not the case), the calculation method of Bezold et al. is not precluded by the claims.

Still as to argument a), Bezold et al. applies their method before manufacturing the assembly, as evidenced by the following statement:

"The number of constrictions provided in the guide tube 2 depends upon the kinetic energy of the control rods whose fall is to be braked. The annular gaps formed between the control rod and the constrictions when the control rod falls into the braking zone have a width of about 1 to 0.1 millimeter. By providing a suitably graduated dimensioning of these constrictions 3 it is then possible to form the exact braking characteristic desired." See col. 3, lines 5+.

Clearly, this shows that before the nuclear fuel assembly is manufactured, the calculation method provides the input to the design of the number of constrictions, as well as their dimensions.

As to argument b), contrary to applicant's allegation, the Bezold et al. method is intended to avoiding damages NOT ONLY to the control rod but also to the guide tube or a damping portion, as evidenced by the following statement::

"It is accordingly an object of our invention to provide hydraulic fall-brake or shock absorber for nuclear reactor control rods which avoids the aforementioned disadvantages of the heretofore known devices of that type and which more particularly avoids the possibility of any damage to the control rod proper or to the reactor core into

which the control rods are suddenly dropped when deactivating the reactor." Underlining provided. See col. 1, lines 63+.

The guide tube and the shock absorber are both parts of the fuel assembly, which, in turn, is part of the reactor core.

As to argument c), as stated in section 9 of the 3/2/07 Office action, calculating a maximum circumferential stress produced in a lower damping portion based on a maximum elevated pressure, is inherently part of the process of optimizing the braking or damping action of the design of the hydraulic fall brake of the control rod in Bezold et al. (see col. 4, lines 3+). Such maximum circumferential stress has to be known (e.g., by approximation or calculation) and not exceeded because otherwise the guide tube and the shock absorber would be damaged.

If applicant is of a different opinion, then calculating a maximum circumferential stress produced in a lower damping portion based on a maximum elevated pressure would be within the knowledge and expertise of one having ordinary skill in the art after exercising the optimization method of Bezold et al. Applying this calculation technique for further improving or refining the Bezold et al. method would have been intuitively obvious to said artisan.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 3663

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bezold et al. (U.S. 3,562,109), who teach an apparatus and method for optimum braking of a control rod for a nuclear reactor.

The reasons are the same as those stated in section 9 of the 3/2/07 Office action, as further clarified in section 2 above, which reasons are herein incorporated.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:00-4:30, Mon-Thurs.

Art Unit: 3663

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RJP
October 16, 2007


RICARDO J. PALABRICA
PRIMARY EXAMINER